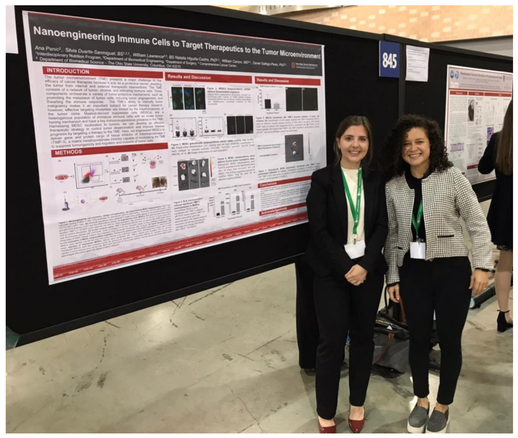
Engineering a Novel Targeted Cancer Therapy

Name: Ana Panic
STEP Project Category:
Undergraduate Research
STEP Faculty Mentor:
Dr. Deborah Larsen
Major: Biomedical Engineering

Personal and Professional Impact

After my STEP project, I gained invaluable experience and skills in biomedical research, including:

- Cell culture and animal work
- RNA isolation and quantitative real time PCR
- Design new experiments
- Analysis of results and troubleshooting
- Patience and perseverance in science
- Collaborate on manuscripts (under review)
- Present at a national research forum

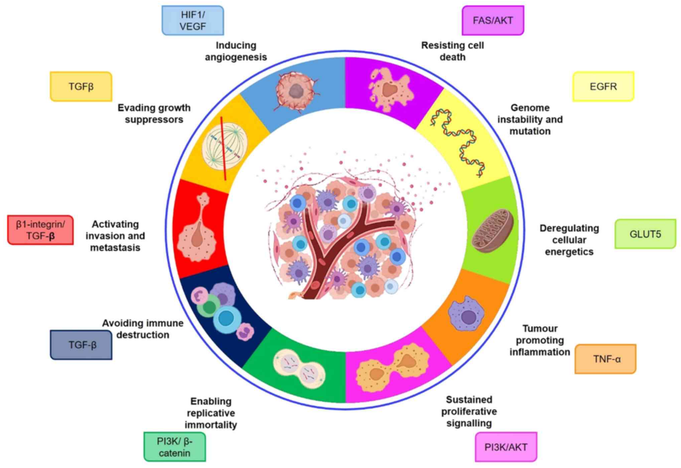


Me and my collaborating research advisor, Silvia Duarte-Sanmiguel with my poster at the BMES conference.

The work I performed over the summer enabled me to present my research at the national Biomedical Engineering Society (BMES) conference in Philadelphia. From this, I gained skills in communicating my work to those with various range in scientific backgrounds.

Project Description

For my STEP Project, I choose to pursue summer research to start developing my undergraduate senior thesis project in engineering a novel tumor-targeting cancer therapy.



Cancer Hallmarks [1].

The diverse hallmarks of cancer, especially the presence of the tumor microenvironment, provide tumors protection against therapeutic benefit. Biomedical engineers in the field of nanomedicine are employing techniques in biotechnology to create potent therapies that can effectively target and eradicate tumors. Specifically, my research is in engineering biological carriers, capable of delivering therapeutic payloads directly to tumors on-site.

Why Research?

I was motivated to get involved in research for my STEP project because of my interests in pursuing biomedical engineering (BME) research as a career. I wanted to get hands-on experience in a research setting to expose myself to the day-to-day requirements and expectations for BME graduate research students.

Project Highlights

- Developing new and exciting avenues in targeted cancer therapies
- Learning in-depth on complex topics in cancer and nanomedicine
- Early-career research experience
- Presented work at professional research forum
- Co-author on submitted manuscripts
- Inspired me to continue research in graduate school

PRECISION NANO-MEDICINE
THE OHIO STATE UNIVERSITY

Research Advisor: Dr. Gallego-Perez

If you are interested in learning more about nanomedicine research, please visit https://nanomedicine.engineering.osu.edu

[1] *Photo retrieved from: https://doi.org/10.3892/ol.2019.10458*